



# User Manual

Eth-FE1 Ethernet to Framed E1  
Interface Converter

# User Manual

*Version 1.0 March 21, 2007*

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# 1 Overview

## 1.1 Introduction

Eth-FE1 interface converter transport N x 64 Kbps Ethernet data over Framed E1 links. It can connect with Ethernet switch or HUB when in 10/100Mbps full/half duplex mode, make use of E1 resource in telecommunication networks to expend the transfer distance and application field of Ethernet, is a suitable solution for broadband switch in of Ethernet. It can used in area such as connecting Ethernet, connecting end offices, VOD, remote monitor, E1 interface of switches, etc.



## 1.2 Product line

Family	Model	Interface A	Interface B
Ethernet converter	Eth -E1	Ethernet	Un-Framed E1
	Eth -FE1	Ethernet	Framed E1
	4Eth -FE1	4 ports Ethernet	Framed E1
	Eth -V35	Ethernet	V.35
	2Eth -FE1	2 ports Ethernet	Framed E1
	Eth+V35-FE1	V.35+Eth	Framed E1
	Eth-2E1	Ethernet	2 ports E1
	Eth-4E1	Ethernet	4 ports E1
	Eth-8E1	Ethernet	8 ports E1
	Eth-16E1	Ethernet	16 ports E1
	Eth-STM1	Ethernet	STM1
Synchronism Data converter	E1-V35	V.35	Dump E1
	FE1-V35/V24	V.35/V24	Framed E1
	FE1-2V35	2 ports V.35	Framed E1
	FE1-4V35	4 ports V.35	Framed E1
	FE1-V35-232	V.35+RS232	Framed E1
Asynchronism Data converter	FE1-RS	RS-232	Framed E1
	FE1-2RS	2 ports RS-232	Framed E1
	FE1-4RS	4 ports RS-232	Framed E1
	FE1-8RS	8 ports RS-232/422/485	Framed E1

G703 Data converter	G703-V	V35/V24	G703
	G703-Eth	Ethernet	G703
Voice converter	FE1-V35-4Fx	V35+ 4 ports FXS/FXO	Framed E1
	FE1-Eth-4Fx	Ethernet+ 4 ports FXS/FXO	Framed E1
impedance converter	IC1	E1(120 Ohm)	E1(75 Ohm)
	IC16	16 ports E1(120 Ohm)	16 ports E1(75 Ohm)
Single-Multi Mode	SM-155/622/1250	155/622/1250 M Multi mode	155/622/1250 M Single mode
Media converter	OEC-Eth	100M Base-TX	100M Base-FX
STM1 converter	OEC-STM1	STM1 electronic interface	STM 1 fiber optical interface

## 2 Technical Specification

### 2.1 Features

- Ethernet port support 10/100M, half/full duplex, auto-negotiation
- Support VLAN.
- Ethernet supports AUTO-MDIX.
- Provide 2 clock modes: master clock, line clock.
- Provide ETHERNET auto reset function, never down.
- With the function of pseudo-random code testing, convenient for opening of the circuit, and can be used as an error code instrument.
- With three LoopBack Modes for test: FE1 interface LoopBack (ANA), ETHERNET interface LoopBack (DIG), command the remote ETHERNET interface LoopBack (REM).
- Provide both 75 Ohm and 120 ohm, only push the switch at the back panel of the device can adjust it.

### 2.2 Technical parameter

#### (1) E1 interface

- Standard: ITU-T G.703
- Line Rate : Nx64Kbps, N=1~32
- Impedance : 75 ohm(unbalance) and 120ohm(balance)
- Connector: dual coax for 75 ohm and RJ45 for 120-ohm

- Jitter Performance: better than ITU-T G.742 and G.823

## (2) Ethernet

- Speed: 10M/100M, full/half duplex self adapt.
- Standard: Support IEEE 802.3, IEEE 802.1Q (VLAN)
- MAC address table: 4096 MAC addresses.
- Ethernet buffer: 64 Mbits SDRAM
- support AUTO-MDIX (cross over and straight through self adapt)

## (3) Dimension

- Desk top type: 210(W)\*140(D)\*30(H)

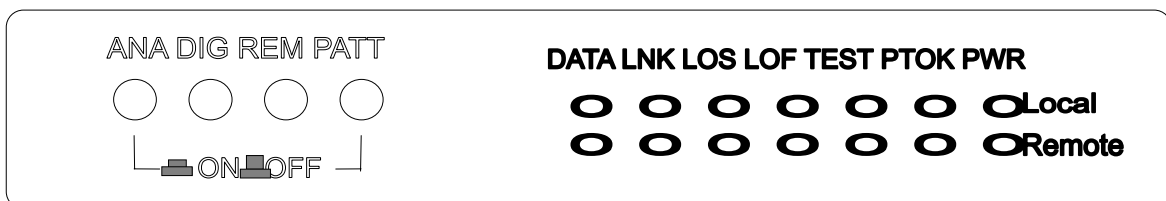
## (4) Other

- Voltage: AC180V-240V, DC-48V, DC+24V
- Power Consumption: <=5 Watts
- Working temperature: 0°C~50°C
- Storage temperature: -40°C~+70°C
- Humidity: 95%

# 3 Operation

## 3.1 Front panel

### 3.1.1 LED



Dual line indicator LED. Upper line LED indicates local device status; down line LED indicates Remote Device status.

name	color	status	description
DATA	Green	Blink	Data received or transmit through Ethernet
LNK	Green	On	Ethernet connected
		Off	Ethernet not connected
LOS	red	On	FE1 signal Lost
		Off	FE1 signal Not Lost
LOF	red	On	FE1 Frame Lost
		Off	FE1 Frame Not Lost

PTOK	green	On	PBRS check OK
		Off	PBRS check failure
TEST	Yellow	On	Device is on test status
		Off	No test
PWR	Green	On	Power connected
		Off	Power not connected

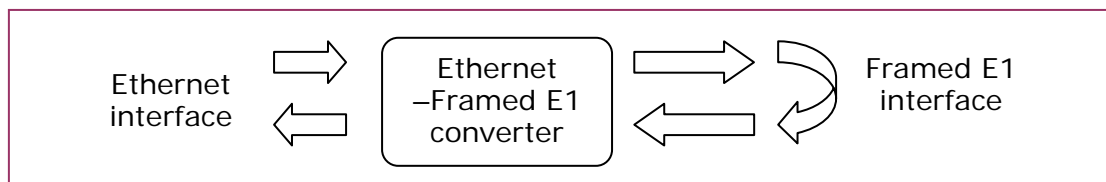
**Caution:** There may be some mistakes when all indicating lights twinkles, (except for the PWR light).

- both of the device are on the status of line clock;
- both of the device are on the status of master clock while the rate setting is different;
- the test key connecting is incorrect which cause into the dead cycle.

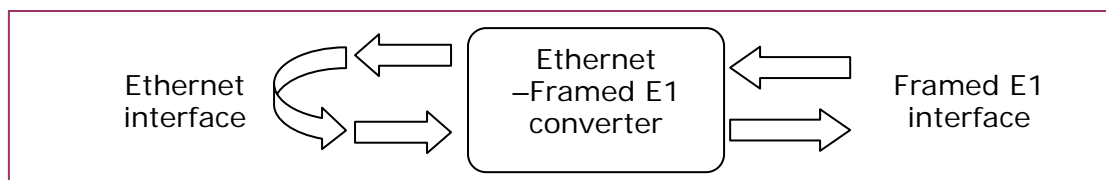
### 3.1.2 Buttons for loop back test

There are four buttons which are shown as below from the left to the right on the front panel.

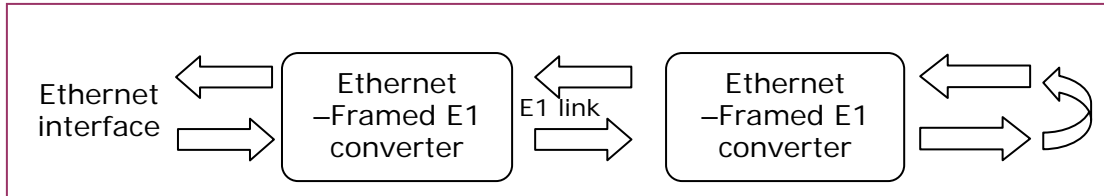
- (1) **ANA:** For FE1 Interface local loop to check whether local device and its connected circuit are correct or not.



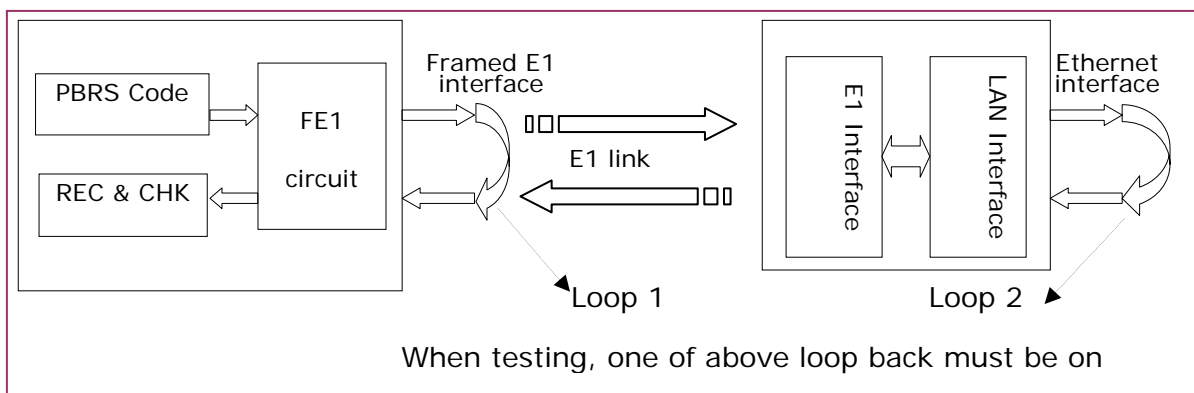
- (2) **DIG:** For 10/100BASE-T Local loop to check the opposite device and optical circuit



- (3) **REM:** For remote ETHERNET self-loop back. It is only available when using framed E1 mode. Invalide for unframed E1 (all time slot are used to transfer ETHERNET data) mode.



- (4) **PATT:** For V.54 test to produce and transmit the PBRs to the 10/100BASE input connector and check whether the output signals of the 10/100BASE same with PBRs standard or not. If same, the PTOk light on, otherwise, off. By this way, the status of FE1 Line can be tested.



Push the PATT button, when loop 1 is on. If PTOk is on, it indicates that the device works well. Loop 1 off and loop 2 on, it indicates that E1 network and both side device work well.

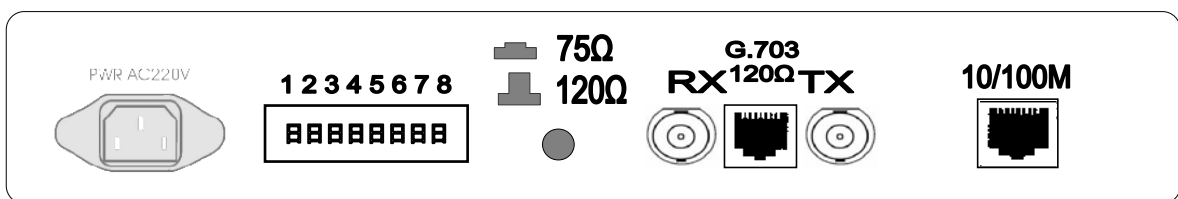
### Note:

- When the test LED on, the normal communication will be interrupt.
- During the PATT model test, the circuit should be cycled by itself.

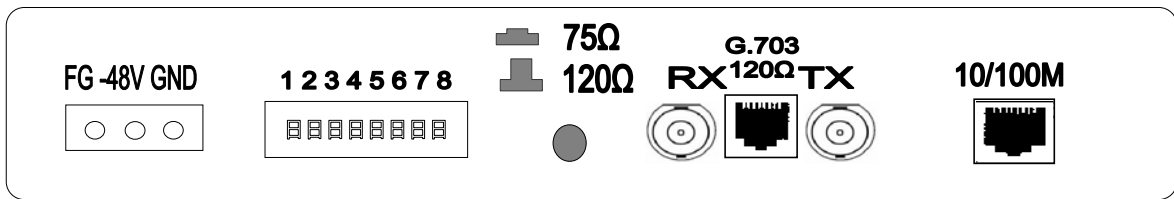
Otherwise, the PATT code can't come back and can not test.

## 3.2 Back panel

### 3.2.1 Connector



DC-48V back panel



AC220V back panel

### (1) E1 (G.703) Interface

#### ▪ 75 ohm unbalance

TX -- FE1 75ohm unbalance, Transmit BNC Interface

RX -- FE1 75ohm unbalance, Receive BNC Interface

#### ▪ 120ohm Balance

	Pin	Definition
	2	TX+ Transmit Data+
	3	TX- Transmit Data-
	6	RX+ Receive Data+
	7	RX- Receive Data-

#### ▪ FE1 Interface impedance set

Impedance	Button
75 ohm	Push Down (Press)
120 ohm	Push UP (loosen)

### (2) Ethernet Interface

10/100M RJ45 on back panel, support AUTO-MDIX(cross over and straight through self adapt), The pin defined as following:

	Pin	Definition
	1	TX+ Transmit Data+
	2	TX- Transmit Data-
	3	RX+ Receive Data+
	6	RX- Receive Data-

## 3.2.2 DIP on the panel

On the panel there are 8 digital dial code switches to set FE1 clk.

### (1) DIP 1: FE1 master clk and line clk set

FE1 clk set	DIP 1
Master (master clk)	OFF
Slave (line clk)	ON



Note: during communicating, one master and one slave is necessary and the rate of the slave will follow the master

(2) DIP2: Ethernet mode

ETHERNET set	DIP 2
10/100M full/duplex auto-negotiation	OFF
10M full/duplex auto-negotiation	ON
Note: If clock mode is slave, the rate of the device will follow the master	

(3) DIP 3: Ethernet reset

ETHERNET RESET	DIP 3
ETHERNET RESET OFF	OFF
ETHERNET RESET ON	ON

(4) Framed E1 rate set

1 indicate OFF, and 0 indicate ON

Slot number	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8	E1 port rate(Kbit/s)
32	1	1	1	1	1	2048(E1 un-frame)
31	1	1	1	1	0	1984
30	1	1	1	0	1	1920
29	1	1	1	0	0	1856
28	1	1	0	1	1	1792
27	1	1	0	1	0	1728
26	1	1	0	0	1	1664
25	1	1	0	0	0	1600
24	1	0	1	1	1	1536
23	1	0	1	1	0	1472
22	1	0	1	0	1	1408
21	1	0	1	0	0	1344
20	1	0	0	1	1	1280
19	1	0	0	1	0	1216
18	1	0	0	0	1	1152
17	1	0	0	0	0	1088
16	0	1	1	1	1	1024
15	0	1	1	1	0	960
14	0	1	1	0	1	896
13	0	1	1	0	0	832
12	0	1	0	1	1	768
11	0	1	0	1	0	704
10	0	1	0	0	1	640
9	0	1	0	0	0	576
8	0	0	1	1	1	512
7	0	0	1	1	0	448

6	0	0	1	0	1	384
5	0	0	1	0	0	320
4	0	0	0	1	1	256
3	0	0	0	1	0	192
2	0	0	0	0	1	128
1	0	0	0	0	0	64

## 4 Installation

- (1) Unpack, inspect the Packing List carefully. Confirm that all items are included with your carton. Contact us or our local agent if there is anything missing or damaged.
- (2) Check power supply. Care about the value of voltage if use DC input.
- (3) Take below test before use
  - Check if all the loop back test switch button on the back panel is **loosen**, PWR and LOS should be ON, and all other led should be OFF.
  - Plug Ethernet cable to HUB or Computer, LINK LED should ON, and LINK of the device connect to converter should ON too.
  - Press ANA, TEST ON, and LOS OFF
- (4) If indicator LED show system work well, loosen all switch on the back panel, power off, set slot switches and clock, plug E1 wires, power on, the device should work normally.
- (5) If the device work UN-normally, refer to trouble shooting chapter. Contact us or our local agent quickly if the problem still can't be solved.

## 5 Trouble shooting

	phenomenon	solution
1	PWR OFF	Check if power supply connect ok
2	LOS ON	Loop back TX(output)and RX(input),if LED OFF, check the E1 wire
3	LINK OFF	Check Ethernet cable

4	all LED work normal, but no data transfer	maybe the problem lies in the FE1 channel; Press the PATT and REM buttons, (or make the opposite device loop back the ETHERNET data), if the PTOK light off, it means the FE1 transmission channel has problem.
5	Data transfer but loss package	maybe the device clock has problem; maybe The ETHERNET has a great lot COL occur; Confirm all devices set into the salve, if yes, make one or two of them into the master clock check the ETHERNET network
<p><b>Remark:</b> How to check whether the device is normal or not?</p> <p>It shows that the device is normal if the PTOK light shows on once you push ANA button and then PATT button and the PTOK will go out if you release the ANA.</p> <p>The PTOK light doesn't show on if you push PATT button and shows on when you push the DIG button of the opposite device. If so, we can make a conclusion both of the devices and the connecting line with E1 interface are normal.</p> <p>When the TEST light shows on, it indicates that any button is set as ON and it is possible the normal data transmission maybe break off.</p> <p>Please make sure the circuit to be a complete loop when you process the PATT test, or the PATT signals can not come back.</p>		

## 6 Packing list

Following are in the Package:

Equipment ----- 1

User manual----- 1



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